

AUG 30 1967

UNITED STATES DEPARTMENT OF AGRICULTURE
INTERNATIONAL AGRICULTURAL DEVELOPMENT SERVICE
WASHINGTON, D.C. 20250

40375 ✓

August 24, 1967

Professor Joshua Lederberg
Professor of Genetics
Stanford University School of
Medicine
Stanford Medical Center
Palo Alto, California 94304

Dear Dr. Lederberg:

Thank you very much for your letter of August 15th.

It is very tempting to take up your offer to help our programs by special emphasis in your writings, and we should. I will endeavor, however, not to abuse such an offer. The best way to do this would be to talk this matter over. Should you ever be in Washington, I would like very much to arrange a luncheon for you to meet and discuss these food problems with prominent members of our Government. In the meantime, I might make some comments that might be helpful and present some information that you may wish to comment on in some future column.

First of all let me tell you that your efforts are important in two ways: First, through your column you are reaching a number of important decision makers. The same day that I received your letter, I also received a note from a top executive of the Agency for International Development calling my attention to one of your recent columns. Secondly, your own personal prestige among scientists is and can be helpful in rallying support for new food developments which sometimes require changes from conventional thinking. For these reasons, we would encourage you and consider you a powerful ally.

I should also like to point out that what little I have been able to accomplish is due entirely to the generous support given these efforts by Secretary Freeman. It was he who was responsible for my becoming active in this field and who arranged for me to leave my research position and move to Washington. Most of my work has required close cooperation with people in the Agency for International Development. I have found this cooperation to be effective. So, in

D+

ALTSCHUL

167 copy
original

Re SAM's

this matter, we are presenting a US Government front.

Now a few specific comments on our position and achievements in two fields: fortification of cereals and new foods.

Fortification

We decided a year and a half ago that fortification provides the fastest and cheapest way of improving protein supply without interfering with current food practice. Moreover, fortification of cereals increases total caloric supply because it spares grains for human consumption that might be otherwise required to support protein production; people who eat amino acid fortified cereals will require less animal protein.

This idea and subject was raised with numerous scientific groups all of whom have supported the notion that we investigate this matter thoroughly.

We proposed demonstrations in several countries to determine the feasibility of such an operation and to measure exactly how much of the fortification reaches the ultimate consumer. We are also considering means of measuring the public health benefits of such activities. All this discussion is stimulating more research on the entire notion of improving the protein impact of cereals.

Amino acid manufacturers have been encouraged to reduce the costs of the amino acids, to develop practical means of providing threonine and tryptophan at low cost, and to aid in getting the kind of information needed to accelerate this entire idea.

Although we are very impatient with progress, there are already small specific practical results. Incaparina which is a mixture of cottonseed protein concentrate and corn being sold in Guatemala is now fortified with lysine. A shipment of wheat intended for emergency relief in Bihar has been fortified with lysine. This is the first large-scale fortification of wheat flour in this manner. There is now active consideration of fortification of other plant protein foods.

Discussions on the practicality of this approach have been held in India, Tunisia, and are being held in several Latin American countries and in countries of the Far East.

There is evidence that amino acids can be encapsulated in such a way to make fortification of formed grain such as rice a practical reality.

Our tentative goals are that all emergency shipments of grains shall be fortified with amino acids by 1969 and that all exports of grains be fortified by 1970, and grains being sold and distributed in well-developed urban centers in countries where there is a protein shortage shall likewise be fortified.

New Protein Foods

In addition to fortification of cereals which will probably have to be subsidized by governments, there is need for an entirely new family of protein foods that will be made from cheaper raw materials and be available to a wider economic strata than the protein foods now being marketed. For this there is need of the active participation of the private sector; there is need to design such new foods which can find their way in the marketplace; and there is need for government support to help the food industry to start such a program.

For this reason the Agency for International Development set up a experimental three year program on high protein foods. The purpose of this program is to aid food companies to study markets in countries where there is a protein shortage, to design foods made principally from indigenous raw materials, and to market test them so as to be able to make an investment decision.

Five contracts were signed in Fiscal Year 1967. They involve the following American companies: Pillsbury, Monsanto, International Milling, Swift and Company, and Krause Milling. Investigations are going on in El Salvador, Brazil, and Tunisia. The kinds of foods being considered are protein beverages from plant sources, fortified corn products, food products from soybeans, and food products from high protein wheat milling by-products. On the basis of preliminary discussions with these companies, we have every reason to believe that they are making substantial progress and that this program will result indeed in the development of new food industries in the countries where the food shortages exist.

New projects under consideration for this year include cottonseed protein products for human food, baby foods from soy products, soy foods for South Asia, and processing of coconuts in such a way as to recover useful protein products as well as high quality oil.

Our tentative goal is an additional billion glasses of protein beverage per day by 1970. This should include a quarter of a billion glasses per day tailored specifically for infants.

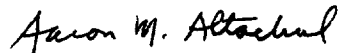
I hope that the above outlined information can be of some use to you.

I do not believe that the really critical studies on the relationship between amino acid deficiency and mental retardation have yet been made. I have been most anxious to find good people who want to work in this field and try to find support for them. The general feeling is, as you say, that there is a relationship; all of the observations on rats and in humans would point in a general way in that direction.

Our own feeling is that the critical amino acid deficiency is in lysine. This is based on the fact that the major source of protein (70% and above of the total) in those areas where there is protein deficiency is the cereal grains. Since all of these are uniformly deficient in lysine, lysine turns out to be the deficient amino acid. There are some who say that methionine might be more correctly the deficient amino acid since most cultures contain legumes as part of the diet. My own feeling is that where there is adequate legumes in the diet no protein malnutrition should show up in the first place. Hence, I would be inclined to discount the role of methionine in major foods. It does however have a role in protein foods in which soybeans predominate. There are others, including some people in FAO, who dispute these points. None of this answers your question since it is only based on calculations and not on direct observation.

I am looking forward to meeting you one of these days. Please give my regards to Arthur Kornberg.

Sincerely yours,



Aaron M. Altschul
Special Assistant for
International Nutrition Improvement